DOCUMENT RESUME

ED 336 668 CG 023 642

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TITLE Academic Stress amongst Adolescents: An Examination by Ethnicity, Grade, and Sex.
PUB DATE 91
NOTE 30p.; Paper presented at the Annual Conference of the New England Educational Research Organization (Portsmouth, NH, April 24-26, 1991).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Academic Achievement; Adolescents; Age Differences; Differences; Ethnic Groups; High Schools; *High School Students; *School Counseling; *School Guidance; Sex Differences; *Stress Variables

ABSTRACT

A great deal of the literature and research dealing with life-events and stress during adolescence has cited school as a major contributor to student stress. As a considerable proportion of a teenager's life is spent at school in the pursuit of academic endeavors, it is reasonable to assume that a substantial proportion of stressors affecting adolescents may originate in the academic area. This study sought to investigate the factors contributing to academic stress within an adolescent student population, and whether these factors vary across ethnicity, sex, and grade. The Academic Pressure Scale for Adolescents was administered to 550 high school students. Four significant factors were found to contribute to academic stress: peer pressure; parental pressure; importance of school; and fear of failure. Peer pressure was found to vary across all variables. Importance of school and fear of failure were found to vary across ethnicity, sex, and grade. If the aim of many guidance and counseling programs is to reduce academic stress, then different goals are suggested reflecting appropriate levels of ethnicity, sex, and grade. Consideration must also be given to the predominance of academic stressors emanating from non-school sources, such as the family, parents, and peers, rather than school factors such as teachers. (ABL)

# Academic Stress Amongst Adolescents:

## An Examination by Ethnicity, Grade, and Sex

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Running head: Academic stress

## Academic Stress Amongst Adolescents:

## An examination by Ethnicity, Grade and Sex


### Abstract

This study sought to investigate the factors contributing to academic stress within an adolescent student population, and whether these factors vary across ethnicity, sex and grade. The Academic Pressure Scale for Adolescents was administered to 550 students and four significant factors were found to contribute to academic stress: peer pressure; parental pressure; importance of school; and fear of failure. Peer pressure was found to vary across ethnicity and grade, but not across sex. Parental pressure was found to be consistent across all variables. Importance of school and fear of failure were found to vary across ethnicity, sex and grade. These variations are discussed in relation to ethnic, grade and gender influences. Implications for education are considered.

## Academic Stress Amongst Adolescents: An Examination by Ethnicity, Grade and Sex

A great deal of the literature and research that has been produced dealing with life-events and stress during adolescence (e.g., Hansell, 1985; Siddique & D'Arcy, 1984; Tolor & Murphy, 1985; Yamamoto, Soliman, Pearsons & Davies, 1987) has cited the school as a major contributor to student stress. As a considerable proportion of a teenager's life is spent at school in the pursuit of academic endeavors, it is reasonable to assume that a substantial proportion of stressors affecting adolescents may originate in the academic area. Little research has been undertaken, however, which attempts to determine the origins of academic stress within the school system.

The existing literature on stress in adolescence reveals several sources of stress to which adolescents find themselves vulnerable in their ongoing social interactions. The stressors emanating from the family, school and peer groups are of particular importance (Donald, 1973; Ficula, 1983: Garzarelli, Hoxter & Lester, 1987; Hansell, 1985; Tolor & Murphy, 1985; Yamamoto et al., 1987). It is in these three spheres of life that adolescents spend most of their time and in which most of their stressful events occur (Siddique & D'Arcey, 1984). Since the family, school and peer group form the major socializing influences on adolescents, the expectations or demands they make may convert into stressors. Further, adolescents may perceive these expectations as limiting their behavior or counter to their own predispositions which may increase the impact of such stressors.

A major purpose for conducting this research was to examine the rationale that environmental conditions associated with ethnicity could produce different patterns of stress within different ethnic groups. Certainly the ethnic specific nature of family and peer group spheres of influence would be expected to exert different pressures on students from different ethnic backgrounds. Socio-cultural conditions will make different groups of individuals sensitive to different stressors. Through common religions, traditions, rules, laws, norms and attitudes, cultural and social factors regulate perception and interpretation of a situational circumstance encountered by an individual (Magnusson, 1981). Hence, the immediate situations which people in different cultures meet in their daily life differ in character (Magnusson, Stattin & Iwawski, 1983). It follows from this that individuals belonging to a group raised or living and functioning in an environment that is homogeneous with regard to cultural influences will share common situation-perceptions (Olah, Magnusson, Goober, Kessin & Reddy, 1984), including that of the type and extent of perceived stressors.

Educators are becoming increasingly concerned about the pressures which face school students (West & Wood, 1970), and many have argued that these pressures are too severe and thus contribute to less than optimal conditions for the development and maturation of adolescents. Patterson (1973), for example, claimed rather emotively that "education has now become so dehumanized and pressure orientated" that it "retards rather than facilitates the learning of children" (p. 12). Adams (1968) asked adolescents to cite their most pressing problems, and school related problems were listed with greatest frequency. West and Wood (1970) found that a third of their sample (n=331) reported

dropping out of an enjoyable activity or hobby because of pressures from school and two-thirds reported feeling a great deal of pressure to do well at school.

Academic stress appears to be a problem primarily when expectations far exceed capabilities. Yadusky-Holahan & Holahan (1983) found that highly motivated and gifted students tend to create their own pressure by setting high unrealistic goals. Their goals "are always one step ahead of what they can produce, so they frequently have a sense of failing to meet their impossibly high expectations. Such students are in a constant state of stress, even though they are the winners in the system" (p. 42).

While stress may be common among high school students (c.f., Garzarelli et al., 1987: Webb & Allen, 1974) there have been few studies which have attempted to investigate academically related stress in school students. To identify the pressures and circumstances that elicit higher amounts of stress in adolescents Coney and West (1979) devised the Academic Pressure Scale for Adolescents. Coney and West (1979) administered the scale to 179 adolescents in an inner city high school and identified ten factors: academically related peer pressure, importance of school success to self and significant others, implications of grades, inadequate academic performance, fear of failure, importance of achievement, failure, parental reaction to low achievement, consequences of academic failure, and apprehension regarding negative achievement. They reported some interactions between race and class, but of most interest is the multiplicity of factors which supports the multifaceted notion of adolescent academic stress.

These same ten factors, however, have not always been supported. West, Wills and Sharp (1982) administered the Academic Pressure Scale for Adolescents to 400 English and 300 American primarily white students and found four factors: peer stress, parental

stress, importance of school, and fear of failure. Wiekhorst (1973), using 111 sixth and 111 ninth grade USA students also found the same four factors.

It is noted that these studies placed much emphasis on the amount of variance accounted by these factors as an indicator that "meaningful" factors had been obtained. Unfortunately, the studies used the amount of common and not total variance explained, and thus it should not be surprising that 99.9% and 100% of the variance is explained! Although this scale has been used by other researchers, the structure of academic stress is far from understood.

A potential confounding variable to understanding the dimensionality of the test is ethnicity. Ethnicity is possibly an important variable given the large number of students, with such diverse backgrounds, in any multicultural school systems. The findings of Coney and West (1979) and West, Wills and Sharp (1982) point to the presence of influential ethnic and cultural variables with regard to stress and the origins of stressors. Magnusson (1981) noted that, within any ethnic group, the formative experiences of the adolescent were influenced by religion, tradition, beliefs, rules, language and other cultural patterns specific to their ethnic background. Variations in the experience, perceptions and response to stress have also been found to result from differences in sex. Despite these findings, together with the consistent finding of a significant sexual dichotomy in relation to other facets of school life, no empirical research has examined gender and ethnicity variations in the factors contributing to academic stress.

This study investigates the underlying dimensionality of the Academic Pressure Scale using more appropriate criteria to determine and identify meaningful factors, and assesses whether the factor pattern is invariant across ethnicity, sex and grade.

## Methodology

**Subjects:** The sample consisted of 317 female and 233 male adolescent students between the ages of 12 and 19 attending grades 8 through 12 in metropolitan senior high schools. The students primarily belonged to Italian (16%), Vietnamese (20%) and Anglo (50%) ethnic groups. The students were spread across five grades: 22.0% were in grade eight, 18.2% were in grade nine, 22.9% were in grade ten, 14.2% were in grade eleven and 22.7% were in grade twelve.

**Measures:** The Academic Pressure Scale of Adolescents was designed to identify the antecedents of academic anxiety. It consists of 35 items to which subjects respond on a five point Likert scale ranging from strongly agree to strongly disagree. The test-retest reliability of the Academic Pressure Scale for Adolescents is 0.78 (Coney & West, 1979; West, Wills & Sharp, 1982).

**Procedure:** Subjects were each issued a test booklet containing a copy of the Academic Pressure Scale for Adolescents and a cover sheet requesting biographic information. The scale was administered to one class at a time in a classroom setting. Teachers were not present during testing to avoid any undue pressure.

## Results

An exploratory maximum-likelihood factor analysis was computed to assess the dimensionality of the scale. Following the procedure outlined in Hattie (1977) a four factor model provided best fit to the data (chi-square = 942, df = 461). After an inspection of the factor loadings, the items and the derived factor names were presented to various academics conversant with the topic and agreement was reached as to the correct patterning of free (item to load on the factor) and restricted (item constrained to zero, and thus not load on the factor) parameters (see Table 1 for this patterning). The goodness of fit statistics indicated a reasonable fit for this constrained model (chi square = 1725, df = 548, $p < .001$). The analyses indicated that at least two items (2 & 3) were unrelated to any factor, and a number of other items were attempting to assess multiple factors (albeit not always well). These items were eliminated from further analyses.

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Table 1 about here

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The first factor is peer pressure and is best identified by items such as (item 8) "I feel upset when my friends find out about a low mark I have received at school", (22) "It bothers me when my friends ask me about a test I have done badly on", and (15) "I usually worry about what my friends and classmates think of me when the teacher asks me a question and I don't know the answer". The second factor is parent pressure and is identified by items such as (11) "I often worry about what my parents say when they see the grades I receive on my report", (18) "It would upset me if my parents were to ask to

see a test that I had done poorly on", and (24) "I feel a great deal of pressure from my parents to get good results at school". The third factor is importance of school and is identified by items such as (7) "I study hard in all of my subjects because my parents feel it is very important for me to do well at school", (14) "One of the most important responsibilities I have is to always do the best I can in my school work", and (35) "My school work must always come first because my teachers feel it is important for me to study and learn". The fourth factor is fear of failure and is identified by items such as (34) "It would disturb me if my teacher said I wasn't trying in class because I didn't do as well as the school though I should", (16) "It upsets me when I can't understand the assignments my teacher gives at school", and (13) "I get upset when my teachers have to talk to me about not spending enough time on my homework". The intercorrelations between the four factors are quite similar indicating that a single second order factor was present.

A further three restricted factor analyses were then performed using the final pattern on each of the ethnic groups: Anglo (chi square = 1023, df = 486, $p < .001$), Italian (chi square = 881, df = 486, $p < .001$) and Vietnamese (chi square = 806, df = 486, $p < .001$). These chi squares indicate a reasonably close fit of the data to the hypothesis, as the closeness indexes (2.10, 1.81 and 1.66) are all reasonably small (Schmitt, 1978).

The congruence coefficients (Table 2) indicated that Factors 1 and 3 (peer pressure and importance of school) were identical for all three ethnic groups (see Korth, 1978 for significant procedures). A difference was detected between the Anglo and Italian groups, and the Vietnamese group, but not between the Anglo and Italian groups, for factor 2 (parent pressure). The Vietnamese appear more accepting of parent pressure than the other ethnic groups. Differences were found between all ethnic groups for factor 4 (fear of

failure), and caution needs to be placed on interpretations across all ethnic groups involving this factor.

Table 2 about here

A multivariate analysis of variance (MANOVA) was then used to examine the variation of factors across sex (male, female), ethnicity (Anglo, Italian, Vietnamese), and grade (eight, nine, ten, eleven, twelve), on the four dependent variables (peer pressure, parental pressure, importance of school and fear of failure) found by the original factor analysis. BMDP MANOVA was used for these analyses. (A comparison of schools used in the study indicated no difference between the two schools.) Table 3 provides a summary of the analysis.

Table 3 about here

There were significant interactions between the three independent variables. An univariate ANOVA indicated that fear of failure was the only significant contributor to the grade by sex interaction [$F(4, 435) = 3.40$ $p < .01$]. Grade 12 females experienced significantly more fear of failure than their younger counterparts, and grade 10 students scored lowest on this scale. For the grade by ethnicity interaction, an univariate ANOVA indicated that peer pressure [$F(8, 435) = 2.30$ $p < .05$], importance of school [$F(8, 435) = 2.42$ $p < .05$] and fear of failure [$F(8,435) = 3.06$ $p < .02$] significantly contributed to the overall difference (see Tables 4 to 8). Vietnamese students reported the highest peer pressure and regarded school as most important. For the Anglos and Italians, the level

decreased until the end of compulsory formal education (Grade 10) and then markedly increased. All students had high fear of failure except for Grade 10 Italian students. The significant interaction between sex and ethnicity [$F(4, 435) = 3.85$ $p < .03$] was a function of female Anglos and Italian males regarding school as much more important than male Anglos and female Italians. Vietnamese males and females both considered school as much more important than any of the other groups.

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Tables 4 to 8 about here

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The main effects, while moderated by the above interactions, indicated that Grade 11 and 12 students had highest peer pressure and fear of failure, grades 7 and 8 had highest importance of school. For ethnicity, Vietnamese scored highest and Anglos lowest on peer pressure and importance of school.

## Discussion

Four significant factors were found to contribute to academic stress in the adolescent population. These were peer pressure, parental pressure, importance of school and fear of failure. These four factors corresponded to those identified in the study of Wiekhorst (1973) and West et al. (1982).

The congruence coefficient showed a closer relationship between Anglo and Italian ethnic groups than either the Vietnamese and Anglo or Vietnamese and Italian groups. These differences could be because the Vietnamese culture is most different from either the Anglo or Italian, or because of the recent influx of Vietnamese culture and hence has not had the same opportunity to be "assimilated" as has the Anglo and Italian culture.

Vietnamese students experienced significantly greater amounts of peer pressure than Anglos or Italians. The feeling of "stranger in a strange land" residual in many ethnic groups, may be particularly strong in Vietnamese as a consequence of their relatively recent arrival compared to other ethnic groups. In such a cohesive group the importance of peers and conformity to norms imposed by them is likely to be strong.

Upon entry into high school students are surrounded by a bewildering system with unfamiliar routine and strange teachers with different habits compared to those they have experienced during their previous seven years of schooling. Within this unfamiliar environment, one of the few consistencies are peers, many of whom have known each other during primary school. Thus, at this time, students would be particularly sensitive to peer pressure. As time progresses and they familiarize themselves with the routines, expectations, pit falls and benefits of high school life their reliance on peers may fall, which corresponds to the drop in the stressful impact of peer pressure during years 9 and 10.

Entrance into grade 11 and the commencement of non-compulsory schooling is another unfamiliar situation. Here again peers provide at least one constant. Thus there occurs a peak of peer pressure during year 11, similar to the peak found during grade 8 upon entry into the unfamiliar high school. Such developmental factors which result in

changes in the quantity and a variation of the quality of peer pressure as adolescence progresses have been reported by Meyer and Dusek (1979) and Warren, Good and Velten (1984).

The absence of a significant result with regard to peer pressure and gender is in agreement with the findings of Van Der Ploeg, Hulshof and Leiden (1984), but is in contrast to the findings of Brown (1982) who found females to experience more peer pressure than males. However, Brown's data although measuring peer pressure of high school students, was obtained retrospectively from an atypical sample of post high school students then attending college.

No significant interactions or main effects were obtained for parental pressure: the ratings were similar across ethnicity, grade and gender (c.f., Leidy & Starry, 1968; Hess, McDevitt & Chang, 1987; Marjoribanks, 1987).

Importance of school was found to be significant in the sex by ethnicity and grade by ethnicity interactions, grade main effect and ethnicity main effect. Vietnamese were found to place a significantly greater emphasis on the importance of school when compared to Italian or Anglo students. In Vietnam, as well as within the local Vietnamese communities, education is valued extremely highly. It is seen as the method by which an individual can move ahead and make a success of themselves. Evans (1987) found Asian immigrants to have largely come from prosperous, well educated backgrounds. Such people are likely to continue to place a high value on education and this value may be reflected in the attitudes of their children. Interviews with Vietnamese also revealed that as immigrants associated with refugeeism they felt unwanted carrying the stigma of "boat people" (see Jones, 1988 for details of these interviews). Also as one of the most recent ethnic groups to become

established and under the present social and economic climate, these people may feel the best way to move ahead and improve their status is via sound education. Thus the emphasis placed on the importance of school may also be influenced, not only by the traditional value of Vietnamese society, but also by the upwardly mobile migrant syndrome. This concurs with the more generalized proposal by Phillips, Martin and Meyer (1972) that the achievement motivations of the minority child may be stronger than the majority.

Conversely, many Italians arrived when education was not necessarily the quickest or surest route to progress, however hard work in physical fields of the labor force was. In addition many Italian immigrants came from less well educated farming and labor orientated backgrounds (Marjoribanks, 1981). Thus many Italians have traditionally gravitated towards the blue collar occupations. If an Italian adolescent perceives their future in this area they may not view school with the same importance as a Vietnamese adolescent. The predominant culture is Anglo with a preponderance of Anglo attitudes and values. Hence Anglos, although viewing school as important, may tend not to hold it in the same regard as Vietnamese.

When students first enter high school they are likely to view school as being particularly important. Experiences in school are likely to be quantitatively greater than any other area with the exception of the home (Heatherington & Parke, 1979). Within the elementary school itself many of these experiences are centered around a very narrow field such as a single teacher in a single classroom, all of which may constantly emphasize the importance of education. Upon entry into high school, however, the effects of a larger population, greater variety of influence and the developmental values and attitudes of the

adolescent result in the effect of the importance of school being diluted by other numerous factors. These may include the importance of opposite sex relations as well as social and physical survival in a large, densely packed population.

Upon termination of compulsory schooling, those who return to years 11 and 12 have made a commitment to education and may therefore view school with some importance. However the numerous other influences on the life of a developing adolescent may prevent importance of school for most children attaining the same levels as it did during year 8, and year 12 sees this importance drop to the low levels experienced during grade 10.

Importance of school was greater for female than male Anglos and Vietnamese. Conversely school was valued higher by Italian males than females. The current social and economic climate is such that if a female wishes to have security beyond getting married and having children and move away from fragile employment, in such traditional occupations as banks and post offices, she has to compete in other job markets. To do this successfully she needs education. Females are making greater inroads into occupations requiring a sound educational background than those occupations which do not. This is notable in professional, clerical and retail industries as opposed to other occupations where they still have only minor representation, such as the trades or management. Males have a wider range of opportunities in the form of trades available to them, whereas females must increasingly rely on education to help them attain economic independence and security. Hence the higher importance placed by them on school. This is also the view taken by Vietnamese females, indeed those Vietnamese females interviewed claimed education was doubly important because they felt doubly disadvantaged. These individuals felt they had to

prove themselves twice, once because they were Vietnamese and once because they were female. Italian females however may be strongly influenced by traditions, norms and attitudes of the Italian culture which informs them that paramount in their adult life is the converse of economic independence and security. The Italian society emphasizes the role of the female as that of housewife and mother. These roles do not require a high level of educational qualification, indeed a high level of education might well breed disenchantment and dissatisfaction with the traditional female role.

The low fear of failure experienced by both sexes during grade 10 is likely to be an artifact of some children leaving school at this stage as grade 10 is the final year of compulsory schooling. Such children will have decided on their future paths and hence may be less concerned with high academic achievement and therefore suffer little fear of failure. The sudden increase in fear of failure exhibited by females during grade 11 and 12 is also likely to be influenced by developmental factors. Witkin-Lanoil (1984) cites females as being particularly vulnerable to fear of failure and that this stressor frequently becomes a problem in adult life. Thus as young girls begin the process of maturation into young adults an increase in fear of failure may be expected.

The amount of fear of failure experienced during grades 8 and 9 remained constant followed by a decrease to grade 10 and a sharp rise to grade 11 with a peak occurring during grade 12. This is likely to be as a consequence of the emphasis placed on achievement and the consequences of failure when students are first admitted into high school and a consequence of students making a decision that academic achievement is valuable and thus entering non-compulsory schooling. As students begin to relate academic success to future occupational choice and security, so fear of failure increases as the

consequences of failure become more apparent. Understandably fear of failure reaches a peak in the final year of high school as students prepare for their terminal assessment procedures and examinations prior to graduation from senior high school. These grade differences were unexpected, as Wiekhorst (1973) did not obtain grade differences for the same four factors.

Ethnic variations identified by the congruence coefficient were confirmed in the grade by ethnicity interactions for peer pressure, importance of school and fear of failure; the sex by ethnicity interactions for importance of school; and the main effects for peer pressure and importance of school. The variations involving stress and ethnicity found in this study concur with the ethnic differences found by Coney and West (1979), Olah, Magnusson, Goober, Kassin and Reddy (1984) and Newcomb, Huba and Bentler (1986).

Grade was found to influence academic stress in the grade by sex interaction for fear of failure; grade by ethnicity interaction for peer pressure, importance of school and fear of failure; and main effects for peer pressure, importance of school and fear of failure. These results are in contrast to the findings of Payne, Smith and Payne (1983) and Wiekhorst (1973). Payne et al. (1983) investigated test anxiety and found no difference across a sample of fourth and eighth grade students. Similarly Wiekhorst (1973) found no difference across a sample of sixth and ninth grade students in an investigation of academic stress. The present study included older students at a later developmental stage on a continuum from grade 8 through to grade 12, compared to grades 4 and 8 studied by Payne et al. (1983) and grades 6 and 9 studied by Wiekhorst (1973).

It is worthwhile noting that grade by ethnicity interactions for peer pressure, importance of school and fear of failure consistently indicated that the three ethnic groups

entered high school with similar amounts of perceived importance of school, peer pressure and fear of failure. After year 8, however, this uniformity was lost. This is possibly a consequence of the relative size of primary and secondary schools. Student populations within primary schools are smaller, the school is more personalized and the ethnic groups not as dense. Secondary schools have a far greater population and amalgamate the populations from several primary schools. The secondary school is less personalized and the atmosphere less structured. Pressure is increased and an emphasis placed on learning. This, combined with the needs of the developing adolescent, sees the uniform intake into year 8 splinter and form into ethnic subgroups reflecting the attitudes and values of their culture.

Stress is known to have a deleterious effect. If the aim of many guidance and counselling programs is to reduce academic stress, then different goals are suggested reflecting appropriate levels of ethnicity, sex and grade. For example, reduction of the high levels of peer pressure and importance of school as stressors would be more relevant to the Vietnamese population, whereas reduction of the high levels of peer pressure and fear of failure would be more appropriate for classes of grade 11 students. Consideration must also be given to the predominance of academic stressors emanating from non-school sources, such as the family, parents and peers, rather than school factors such as teachers. It may be worthwhile to consider why teachers are not significant contributors to perceived stressors although they are obviously important contributors to the learning and schooling process.

## References


Brown, B.B. (1982). The extent and effects of peer pressure among high school students: A retrospective analysis. Journal of Youth and Adolescence, 11, 121-133.

Coney, Y., & West, C.K. (1979). Academic pressures and the black adolescent. Contemporary Educational Psychology, 4, 318-323.

Evans, M.D.R. (1987). Immigrant women in Australia: Resources, family and work. International Migration Review, 18, 1063-1090.

Ficula, T.V. (1983). Factors associated with school refusal in adolescents: some preliminary results. Paper presented at the annual convention of the American Physiological Association, Anaheim, CA. (Eric Document Reproduction Service No. ED 237 914).

Garzarelli, P., Hoxter, A.L., & Lester, D. (1987). Depression and stress in high school students from the USA and Jamaica (West-Indies). Psychological Reports, 61, 854.

Hansell, S. (1985). Adolescent friendship networks and distress in school. Social Forces, 63, 698-715.

Hattie, J. (1977). A four stage factor analytic approach to studying behavioural domains. Applied Psychological Measurement, 1981, 5, 77-88.

Heatherington, E.M., & Parke, R.D. (1979). Child psychology: A contemporary viewpoint (2nd ed.). New York: McGraw-Hill.

Hess, R.D., McDevitt, T.M., & Chang, C.M. (1987). Cultural variations in family beliefs about children's performance in mathematics: Comparisons among Peoples' Republic of China, Chinese-American, and Caucasian families. Journal of Educational Psychology, 79, 179-188.

King, M., Stanley, G., & Burrows, G. (1987). Stress: Theory and Practice. Sydney: Grune & Stratton.

Korth, B. (1978). A significance test for congruence coefficient for Cattell's factors matched by scanning. Multivariate Behavioral Research, 12, 419-430.

Jones, R.W. (1988). Academic Stress Amongst Adolescents: An Examination by Ethnicity, Grade and Sex. Unpublished Honors Thesis, University of Western Australia.

Leidy, T.R., & Starry, A.R. (1967). The American adolescent : A bewildering amalgam. NEA Journal, 56, 8-12.

Magnusson, D. (1981). Situation determinants of stress. The interactional perspective. (Supplement 55). Stockholm: University of Stockholm, Department of Psychology.

Magnusson, D. Stattin, H., & Iwawski, S. (1983). Cross-cultural comparisons of situational anxiety reactions. Series in Clinical and Comparative Psychology, 2, 177-190.

Marjoribanks, K. (1981). Ethnic families and children's achievements. Sydney: George Allen and Unwin.

Marjoribanks, K. (1987). Ability and attitude correlates of academic achievement: Family-group differences. Journal of Educational Psychology, 79, 171-178.

Meyer, W.J., & Dusek, J.B. (1979). Child psychology a developmental perspective. New York: D.C. Heath.

Newcomb, M.D., Huba, G.J., & Bentler, P.M. (1986). Desirability of various life changes among adolescents: Effects of exposure, sex, age and ethnicity. Journal of Research in Personality, 22, 207-227.

Olah, A., Magnusson, D., Goobar, I, Kassin, H., & Reddy, N.Y. (1984). Culture, age and sex as moderating factors in the appraisal of anxiety in the environment. (No.619). Stockholm: University of Stockholm, Department of Psychology.

Payne, B.D., Smith, J.E., & Payne, D.A. (1983). Grade, sex and race differences in test anxiety. Psychological Reports, 53, 291-294.

Phillips, B.N., Martin, R.P., & Meyer, J. (1972). Interventions in relation to anxiety in school. In C.D. Spielberger (Ed.), Anxiety: Current trends in theory and research. New York: Academic.

Schmitt, N. (1978). Path analysis of multitrait-multimethod matrices. Applied Psychological Measurement, 2, 157-173.

Siddique, C.M., & D'Arcy, C.D. (1984) Journal of Youth and Adolescence, 13, 459-473.

Tolor, A., & Murphy, V.M. (1985). Stress and depression in high-school students. Psychological Reports, 57, 535-541.

Van der Ploeg, H.M., Hulshof, R.E. & Leiden, S.U. (1984). Cross-cultural study of the relationship among academic performance, test anxiety, intelligence and sex. Psychological Reports, 55, 343-346.

Warren, R. Good, G., & Velten, E. (1984). Measurement of social-evaluative anxiety in junior high school students. Adolescence, 29, 643-648.

West, C. K., Wills, C. L., & Sharp, A. (1982). Academic stress among early and mid adolescents in England and the United States. Journal of Early Adolescence, 2, 145-150.

Wiekhorst, C.L. (1973). Relationships between sources of school related pressure and academic achievement. Unpublished doctoral dissertation, University of Illinois, Illinois.

Witkin-Lanoil, G. (1984). Coping with stress: A practical, self-help guide for women. London: Sheldon.

Yamamoto, K., Soliman, A., Pearsons, J., & Davies. O.L.Jr. (1987). Voices in union: Stressful events in the lives of children in six countries. Journal of Child Psychology, 28, 855-864.

Table 1
Estimated Parameter Matrix

| Item | Peer | Parent | Importance of school | Fear of failure | $U^2$ |
|---|---|---|---|---|---|
| 1 | .627 | .000 | .000 | .000 | .607 |
| 2 | .000 | .000 | .000 | .278 | .922 |
| 3 | .000 | .000 | .000 | .291 | .915 |
| 4 | .000 | .508 | -.093 | .000 | .774 |
| 5 | .000 | .594 | .000 | .000 | .648 |
| 6 | .000 | .321 | .000 | .000 | .897 |
| 7 | .000 | .000 | .680 | .000 | .538 |
| 8 | .703 | .000 | .000 | .000 | .505 |
| 9 | .000 | .000 | .000 | .534 | .714 |
| 10 | .000 | .000 | .162 | .421 | .737 |
| 11 | .000 | .695 | .000 | .000 | .517 |
| 12 | .000 | .637 | .000 | .000 | .594 |
| 13 | .000 | .000 | .000 | .560 | .686 |
| 14 | .000 | .000 | .633 | .000 | .599 |
| 15 | .651 | .000 | .000 | .000 | .577 |
| 16 | .000 | .000 | .000 | .573 | .671 |
| 17 | .000 | .000 | .506 | .000 | .744 |
| 18 | .000 | .657 | .000 | .000 | .569 |
| 19 | .000 | .682 | .000 | .000 | .535 |
| 20 | .616 | .000 | .000 | .000 | .620 |
| 21 | .000 | .324 | .519 | -.305 | .647 |
| 22 | .732 | .000 | .000 | .000 | .464 |
| 23 | .542 | .000 | .000 | .000 | .706 |
| 24 | .000 | .634 | .000 | .000 | .598 |
| 25 | .000 | .314 | .000 | .238 | .755 |
| 26 | .000 | .217 | .000 | .147 | .893 |
| 27 | .000 | .000 | .000 | .577 | .667 |
| 28 | .000 | .000 | .612 | .000 | .625 |
| 29 | .640 | .000 | .000 | .000 | .590 |
| 30 | .453 | .000 | .000 | .000 | .795 |
| 31 | .000 | .000 | .362 | .000 | .869 |
| 32 | .000 | .567 | .000 | .000 | .678 |
| 33 | .000 | .615 | .000 | .000 | .621 |
| 34 | .000 | .000 | .000 | .586 | .657 |
| 35 | .000 | .000 | .642 | .000 | .588 |

Intercorrelation between the factors

| | I | II | III | IV |
|---|---|---|---|---|
| I | 1.00 | | | |
| II | .57 | 1.00 | | |
| III | .42 | .43 | 1.00 | |
| IV | .72 | .61 | .44 | 1.00 |

Table 2

Congruence coefficient between the four factors across three ethnic groups

| | Anglo/Ital | Anglo/Viet | Ital/Viet |
|---|---|---|---|
| Factor 1 | .994* | .994* | .997* |
| Factor 2 | .962* | .866 | .790 |
| Factor 3 | .989* | .918 | .899 |
| Factor 4 | .847 | .673 | .790 |

*$p < 0.05$

Table 3

MANOVA of the four dependent variables moderated by sex, ethnicity and grade

| Condition | df | F | p |
|---|---|---|---|
| Grade x Sex | 16, 1320 | 1.77 | <0.03 |
| Grade x Ethnicity | 32, 1594 | 1.88 | <0.01 |
| Sex x Ethnicity | 8, 864 | 2.28 | <0.02 |
| Grade | 16, 1320 | 5.93 | <0.01 |
| Sex | 4, 435 | 1.27 | <0.28 |
| Ethnicity | 8, 864 | 11.88 | <0.01 |

Table 4

Means and standard deviations of fear of failure for the Grade by Sex Interaction.

| | | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|
| Female | Mean | 35.5[a] | 35.0[a] | 34.4[a] | 39.8[b] | 42.8[c] |
| | Sd | 7.2 | 6.1 | 6.6 | 4.0 | 3.4 |
| Male | Mean | 37.7[d] | 37.7[d] | 32.3[e] | 37.0[d] | 38.3[d] |
| | Sd | 5.4 | 6.2 | 7.9 | 6.4 | 4.3 |

Note: Means not sharing common superscripts are significantly different, Kramer adjustment of Duncan's Multiple Range Test, $p<.05$.

Table 5

Means and standard deviations of peer pressure, importance of school and fear of failure for the Grade by Ethnicity Interaction.

| | | Peer Pressure | | Importance of school | | Fear of failure | |
|---|---|---|---|---|---|---|---|
| | Grade | Mean | Sd | Mean | Sd | Mean | Sd |
| Anglo | 8 | 24.98[a] | 7.08 | 27.18[a] | 4.70 | 38.18[a] | 7.12 |
| | 9 | 22.88[a] | 6.47 | 24.97[b] | 3.80 | 37.74[b] | 6.36 |
| | 10 | 19.88 | 6.50 | 23.15 | 4.55 | 34.22[d] | 6.38 |
| | 11 | 25.63[a] | 5.36 | 24.28 | 4.62 | 37.00[d] | 4.98 |
| | 12 | 22.95[a] | 6.10 | 24.48 | 4.86 | 39.43[c] | 5.12 |
| Italian | 8 | 24.15[a] | 5.60 | 28.48[a] | 3.77 | 37.64[a] | 6.40 |
| | 9 | 21.94 | 7.75 | 28.68[a] | 3.37 | 36.49[d] | 5.48 |
| | 10 | 18.94 | 6.66 | 22.30 | 4.70 | 29.83 | 10.01 |
| | 11 | 26.58[a] | 11.00 | 26.04[c] | 4.74 | 40.40[c] | 6.97 |
| | 12 | 30.21[b] | 3.74 | 34.66[d] | 3.22 | 36.95[d] | 4.16 |
| Vietnamese | 8 | 24.85[a] | 5.66 | 28.38[a] | 3.74 | 35.08[d] | 6.34 |
| | 9 | 25.08[a] | 7.19 | 31.19[e] | 2.54 | 34.95[d] | 6.68 |
| | 10 | 26.01[a] | 5.48 | 28.62[a] | 3.77 | 36.11[d] | 5.29 |
| | 11 | 28.28[c] | 7.08 | 30.12[e] | 2.77 | 37.70[a] | 3.62 |
| | 12 | 26.45[a] | 3.82 | 28.94[a] | 2.56 | 38.75[b] | 2.32 |

Table 6

Means and standard deviations of importance of school for the Sex by Ethnicity Interaction

| | Anglo | | Italian | | Vietnamese | |
|---|---|---|---|---|---|---|
| | Female | Male | Female | Male | Female | Male |
| Mean | 28.02[a] | 24.80[b] | 25.20[b] | 27.37[a] | 30.32 | 28.46[a] |
| Sd | 3.98 | 4.97 | 4.02 | 4.12 | 2.71 | 3.10 |

Note: Means not sharing common superscripts are significantly different, Kramer adjustment of Duncan's Multiple Range Test, $p<.05$.

Table 7

Means and standard deviations of peer pressure, importance of school and fear of failure for the Grade Main Effect

| | Peer Pressure | | Importance of school | | Fear of failure | |
|---|---|---|---|---|---|---|
| | Mean | Sd | Mean | Sd | Mean | Sd |
| 8 | 24.53[a] | 6.73 | 22.65[a] | 4.65 | 37.01[a] | 6.91 |
| 9 | 23.15[a] | 6.61 | 26.71 | 4.38 | 36.90[a] | 6.35 |
| 10 | 22.47[b] | 7.02 | 25.48 | 5.23 | 34.34[b] | 7.11 |
| 11 | 26.77 | 7.04 | 26.52 | 4.50 | 39.12[c] | 5.16 |
| 12 | 24.55[a] | 6.47 | 25.56 | 4.95 | 40.48 | 5.13 |

Note: Means not sharing common superscripts are significantly different, Kramer adjustment of Duncan's Multiple Range Test, $p<.05$.

Table 8

Means and standard deviations of peer pressure and importance of school for the Ethnicity Main Effect

| | Peer pressure | | Importance of school | |
|---|---|---|---|---|
| | Mean | Sd | Mean | Sd |
| Anglo | 23.23 | 6.07 | 25.30 | 4.72 |
| Italian | 24.07 | 7.80 | 25.72 | 5.05 |
| Vietnamese | 26.33[a] | 6.04 | 29.50 | 3.49 |

Note: Means not sharing common superscripts are significantly different, Kramer adjustment of Duncan's Multiple Range Test, $p<.05$.